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ABSTRACT

At the end of the 1960s, the industrial park of Montes Claros, Brazil, was established. Until then the economy of the municipality had been based on cotton, beef cattle, and subsistence farming. The main obstacle to industrialization was the lack of a qualified local labor force. Trapped between the costs associated with workers recruited elsewhere and the deficiencies of workers recruited locally, firms in Montes Claros sought a number of alternatives. When the traditional training alternatives failed, a group of local business owners, the Commercial and Industrial Association, obtained contributions from 15 firms to establish the Educational Foundation of Montes Claros (FEMC). The school began by offering short courses in areas of urgent need. At the end of 1989, the Technical School, the core activity of the FEMC, enrolled 2,419 students in middle and secondary school, afternoon classes for adolescents, and night classes for students aged 14 to 40 who work during the day. The FEMC offers short courses, ranging in length from 4 to 120 class hours, and offers the direct sale of services. Income comes from student fees, scholarships, contributions of local firms, and sale of services. The effort represents a novel and successful approach to vocational school finance, in which costs are divided between employers and students, with only minimal contributions from public funds. (12 references) (YLB)

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Discussion Paper No. 69

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by Candido A. Gomes

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edited by the Training Policies Branch of ILO Geneva

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Introduction

How are herdsmen and small farmers to be turned into skilled industrial workers when fiscal incentives attract industry to a previously agricultural region? How can the high wages and settlement costs associated with recruiting workers from other regions or other countries be avoided? One possibility is to provide training within the region, to prepare the local workforce to participate in the modern economy. But what is to be done when the government and the public agency responsible for training fail to develop an appropriate programme? Then local industries must take it upon themselves to train their own workforce.

This was the strategy adopted by a group of businessmen in Montes Claros, in the state of Minas Gerais, who decided to establish a vocational school in 1976. The school lived from crisis to crisis, but finally grew to the point where it now enrols almost three thousand students in several different communities. Obliged to struggle for financial survival without a predictable source of funding, the school became adept at controlling costs and generating revenues from a variety of sources. Today it represents a novel and successful approach to vocational school finance, in which costs are divided between employers and students, with only minimal contributions from public funds.

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I. Background

In 1985 the population of Montes Claros was 214,472, according to offical estimates. The city is located between the valleys of the Sao Francisco and Jequitinhona Rivers, in a very poor region of Brazil. It is an island of relative wealth surrounded by rural poverty, and it attracts large numbers of rural migrants to its many favelas. According to the 1985 population estimate 88 percent of the population in the municipality lived in the urban centre, and, according to the Economic Census of 1980, 22.2 percent of the economically active population were employed in industry. (See Table 1.)

Table 1. Employed labour force, by occupation, Montes Carlos, 1970-1980

SECTOR	1970	1975	1980
Agriculture	74.1	57.6	44.6
Industry	8.0	16.3	22.2
Commerce	12.1	15.5	17.6
Other Services	5.8	10.6	15.6
TOTAL	100.0	100.0	100.0

SOURCE: F-IBGE, Censos Economicos.

For fiscal purposes Montes Claros is considered to be part of the impoverished northeastern region, and the city was therefore eligible for fiscal incentives provided by the regional development agency, SUDENE. Under a programme of incentives to industry known as 34/18, Brazilian firms were permitted to deduct 50 percent of their corporate income tax payments and other tax obligations for investment in industrial projects determined to be beneficial to the region. The large tax breaks offered to the firms were to provide capital for investment in the region. The programme was begun in 1961 in an effort to reduce regional inequalities in Brazil and more specifically to reverse the chronic poverty and backwardness of the Northeast.

The available evidence suggests that the programme was successful in promoting significant industrial development, which has allowed the Northeast to escape from its traditionally exclusive reliance on agricultural exports.

The new industries that were established under the programme have generally thrived, which indicates that they are more than artificial projects designed to take advantage of the incentives offered. At the same time, however, it

is widely acknowledged that the programme has not been especially successful in creating jobs. Urban unemployment and underemployment did not fall in the period in which the programme operated, but actually increased because of the simultaneous abandonment of programmes aimed at rural development. Even so, the 34/18 programme cannot be blamed for the capital intensity of the industries that were brought to the Northeast; firms simply made use of technologies that would allow them to compete with firms in other parts of Brazil (Magalhaes, 1983; Jatoba et.al., 1985).

Problems with the local labour force also encouraged the adoption of capital intensive technologies. Labour is abundant in the Northeast, but productivity is low because of generally low levels of health and education. Ultimately, labour costs are high, even though salaries are on average lower than in other regions. Moreover, it has been argued that the costs of skilled labour and administrative personnel are higher in the Northeast than in the rest of Brazil (Goodman and Albuquerque, 1974).

It was in this context that the industrial park of Montes Claros was established at the end of the 1960s. Until then the economy of the municipality had been based on cotton, beef cattle, and subsistence farming. Since then local industries have diversified in terms both of their activities and their markets, to the point where Montes Claros now has an extensive and varied industrial sector. Nevertheless, the majority of the local labour force still works in agriculture.

II. Official inaction and corporate action

The main obstacle to industrialisation in Montes Claros, according to those in charge of the first enterprises to move to the city, was the lack of a qualified local labour force. Even for construction projects about 40 percent of the workers were brought in from elsewhere, including carpenters and labourers. One could often find workers from six different foreign countries in local restaurants. There were two main labour problems. On the one hand, local workers were in need of training and had difficulty in adapting to an urban-industrial environment. The resocialisation that was needed extended even to teaching recent arrivals (used to going barefoot) not to cut holes in their protective shoes when they developed blisters. On the other hand, the cost of bringing workers to Montes Claros from other countries and other regions was very high, and the workers had difficulties in adapting to a small provincial city where the opportunities for education, recreation, and culture were different from those to which they had grown accustomed at home. Turnover was very high, and the poaching of qualified workers was intense. According to various informants SUDENE (and the government more generally) was not much concerned with the social conditions encountered by workers. In the words of one, with regard to the needs of local industries SUDENE "thinks like the average Brazilian businessman: get them started, and then let the fit survive."

Trapped between the costs associated with workers recruited elsewhere and the deficiencies of workers recruited locally, firms in Montes Claros sought a number of solutions. They contracted for short courses under the government-sponsored Intensive Labour Training Programme (PIPMO), but the quality of the programmes was unsatisfactory. They subsequently tried to bring an agency of the semipriavate National Industrial Apprenticeship Service (SENAI) to the city. Though SENAI is ordinarily responsive to the needs of local industries, in this case there was a disagreement about where the training centre should be located. For various reaons the mayor was unable to procure the central site chosen by the directors of SENAI, who as a result abandoned the effort to establish a programme in Montes Claros.

With the traditional training alternatives eliminated and absolutely no possibility that the state or local governments would assume the responsibility (in part for lack of experience with training), a group of local businessmen called a meeting of the Commercial and Industrial Association in order to devise a plan for occupational training. At the time the president of the Association was a man of exceptional concern for the education and training of workers. Experiments with on-the-job training provided by skilled workers from other regions had produced encouraging results. These efforts had demonstrated that in spite of their initial deficiencies local workers were quite capable of mastering new jobs. Some members of the Association had visited a technical school in a neighboring city and determined that it was cheaper to train than to import skilled workers.

About 30 members of the Association attended these early meetings. When asked to make an initial capital donation and to pledge a monthly contribution to establish the Educational Foundation of Montes Claros (FEMC), however, many firms declined to participate, not wishing to commit themselves to pay for a service which was, in their view, the responsibility of SUDENE. The president of the Association argued that what was in question was an investment, and not a charitable donation, and fifteen firms finally agreed to participate in the establishment of the Foundation in 1976. It is

worth noting that no significant differences in size, industry, technological sophistication, or regional origin have been identified between the firms that supported the foundation and those that did not.

A local university professor was recruited to establish the school. Relying on a blend of bureaucratic and charismatic leadership (Weber, 1968), he put together a faculty and defined an institutional philosophy in collaboration with the businessmen backing the school. Using rented classrooms and discarded industrial equipment, a series of short courses were begun in areas of urgent need, including welding and pipe fitting. The courses were subsequently moved to a building occupied by a municipal school (later donated to the FEMC by the Mayor) on a site of 12,000 square meters. Since they held the view that upper primary education (fifth through eighth years) was not a municipal responsibility. The local government transferred the school to the FEMC. It has continued to operate under Foundation auspices, and has been one of the principal sources of students for the technical school.

Fourteen years after its establishment the FEMC offers short courses throughout the region surrounding Montes Claros. It maintains offices in two municipalities, and has built four new buildings on land donated by the municipal government. (See Table 2.)

Table 2 FEMC - Distribution of enrolments by course, 1989

COURSE	ENROLMENT
Middle (5th - 8th years)	497
Secondary (day)	459
Secondary (night)	683
Other Courses	390
In School	284
On Site	106
TOTAL	2,419

SOURCE: FEMC

It is evident that the FEMC, like any formal organisation, participates in a variety of power relationships in interaction with a variety of other actors. According to Downs (1967), to survive and grow organisations must continually demonstrate the utility of their services to one or more constituencies with sufficient influence to ensure the continued flow of resources. Moreover, the growth of organisations takes place only with the adoption of new functions or the incorporation of functions previously fulfilled by less dynamic organisations.

In the case of the FEMC, the adoption of new functions occurred in a vacuum, in which there were no competitors. For this reason, the expansion of its activities was encouraged by those who benefited from its services, including

local firms (among them the patrons of the Foundation) and former and potential students. The value of the Foundation's work was more widely recognised, however, both in the community and beyond. The firms behind the Foundation were adept at building support in the community, allowing firms not contributing to the Foundation to participate in the training programme and winning the political backing of both state and municipal governments. With the advantage of an excellent reputation based on the quality of its programmes and with the support of important local constituencies the FEMC was not threatened by competitors offering similar services. Nevertheless, its expansion was limited by competing claims on resources among local firms, students, and public agencies.

III.The FEMC today: expansion for survival

At the end of 1989 the Technical School, the core activity of the FEMC, enrolled 2419 students. In the middle school the curriculum seeks to encourage students to recognise the importance of work through workshop activities, but without attempting to evaluate their professional aptitudes or prepare them for specific jobs. The secondary school offers up to four courses each year. In the afternoon the school enrols adolescents under an agreement with the state, with teachers otherwise employed in state schools. At night the school enrols students who work during the day, whose ages range from 14 to 40.

The students in FEMC programmes are mostly poor, even by the standards of a municipality where average incomes do not commonly exceed the statutory minimum. An analysis of the subject undertaken by the school was based on the subjective criterion of neighbourhood SES. As can be seen in Table 3, most of the school's students come from low-income neighbourhoods, especially at the secondary level. In confirmation of this finding, nearly all of the students have previously attended public schools. In general, therefore, they are more interested in acquiring a profession than they are in continuing their studies, as the likelihood of their finding a place in the state university in Montes Claros is small.

Table 3 FEMC - Distribution of enrolments by neighbourhood SES, 1989 (in percent)

NEIGHBORHOOD SES	MIDDLE	SECONDARY
Low	64	80
Lower Middle	28	17
Middle	8	3
TOTAL	100	100

Selection of students for the middle school is based on performance in a two-month preparatory course in Portuguese and mathematics. In the secondary day school selection is based on exams in these subjects. In the secondary night school local firms are initially given an opportunity to name their own candidates, after which the school fills the places remaining on the basis of the same two exams. As a rule the demand for places is extremely strong.

In addition to these regular academic programmes, the FEMC offers a wide variety of short courses, ranging in length from 4 to 120 class hours. These are offered in municipalities

throughout the region under agreements with local businesses or public agencies, or financed through the fees paid by students.

Another of the FEMC's activities is the direct sale of services. All programmes are encouraged to market student services to the public, including furniture repair, data processing, and soil analysis. Clients include private and parastatal firms as well as governmental agencies.

The atmosphere in the school is one of energy and commitment. The school and its students are highly visible in the community, and are subject to continual evaluation by local businesses. As a result, teachers in the school appear to enjoy considerable social status, even though their salaries are lower than those of teachers in private academic schools. Teachers who work after hours, projects undertaken by groups, and efforts to ensure the excellence of each course are marks of the school. According to one professor, "the best way to get something done is to keep it simple and work in a team."

Local businesses are actively involved in all activities. Even short courses are offered only after assessment of local training needs. Once a year FEMC directors visit firms to discuss their plans for the school. Follow-up contacts are made with the supervisors of students and former students. The School-Industry Co-operation Council directs the placement of graduates and trainees and continues to oversee their performance. Beyond this, firms receive a bi-annual newsletter and an annual letter of thanks from the student council for their financial support for students. One consequence of this participation is continual modification of curricula, training methods, and enrolments in response to changing business needs.

In general local businessmen regard the students and former students of the FEMC very favourably, with significant reservations only about the obsolescence of some of the equipment used in training. This level of support is attributable to the maintenance and use of open channels of communication with the firms that hire programme graduates, which enables the FEMC to identify and quickly remedy any reasons for dissatisfaction. Moreover, as we have seen, the need to generate its own revenues keeps the FEMC alert to changes in the needs and expectations of its clients, in contrast to schools with more predictable sources of revenues which only rarely alter their programmes. It is important that financial uncertainty not reach excessive levels, however, if the organisation is to remain innovative and responsive to its environment (cf. March and Simon, 1972: 239 ff.).

IV. Walking the financial tightrope

The income of the FEMC comes from the fees paid by students and their families, from scholarships and other contributions pro-vided by local firms, and from the sale of services, in the proportions shown in Table 4. It is a part of the operating philosophy of the school that the student should pay at least a part of the cost of the training provided. Thus, with the exception of those in the secondary day programme (who are public school pupils maintained at the expense of the state government), all of the students in the middle and secondary school courses pay school fees. The fees that each pays vary with family income, with most students paying between 30 and 70 percent of the total cost. In March 1990 the maximum annual payment in the secondary night programme was $643.20 at the official exchange rate, which was equivalent to 53 percent of the fees charged by the most expensive private secondary school in the city, where the course was academic rather than technical. As a rule fees ranged between $199.56 to $439.20. These amounts are far from insignificant when it is remembered that the official minimum salary at the time was only $1123.85.

Table 4 FEMC Distribution of revenues by source, March 1989 (in percent)

REVENUE SOURCE	PERCENT
Tuition payments	58.3
Scholarships paid by firms	27.1
Sale of services	9.1
Short course fees	5.5
TOTAL	100.0

SOURCE: FEMC

The fees paid by each student are supplemented by a scholarship provided by a local firm, whether or not the student is employed by the enterprise. In March 1990 thirteen firms contributed between two and two hundred scholarships each, with the number determined by the firms' directors. It should also be noted that in addition to these contributions, other firms in the area - whether or not they participate in the direction of the FEMC - contribute or lend equipment and materials to the Foundation and offer discounts on the purchase of some goods and services.

The share of the costs of FEMC programmes paid by students and local businesses has varied over time. On average student fees cover 48.7 percent of the costs, and business contributions cover 23.0 percent. The share of annual costs covered by student fees has varied between 32.1 and 76.3 percent, however, while the share covered by business contributions has varied

between12.1 and 56.6 percent. A critical point was reached in 1989, when the share of costs paid by students exceeded the previous maximum at the same time that the share paid by local firms fell below the previous minimum. One alternative that was discussed was a further increase in school fees, which would probably have shifted the composition of enrolments in favour of better-off students more interested in preparation for higher education than in a vocational programme. As this change would have subverted the basic objectives of the FEMC, however, the Board of Directors recommended that firms not only increase the value of their scholarships but also join together in contributing to the reduction of the Foundation's operating deficit.

As can be seen in Table 4, the FEMC cannot cover its costs relying only on student fees and business contributions. The gap in funding is covered through the sale of services and the provision of short courses, which must of necessity generate profits.

In spite of high enrolments, the course in mechanical maintenance displays the highest per pupil costs, especially in the practical component of the curriculum, as the data in Table 5 show. The lowest total cost is found in the course in data processing. The need to control costs and generate its own revenues in order to survive keeps annual per-student costs in FEMC programmes well below those in similar organisations, as can be seen in Table 6.

Table 5 Per student hourly cost in evening technical courses, 1989 (in US$)

COURSE	COST
ELECTRONICS	
Theoretical	$0.25
Practical	$0.29
Total	$0.26
ELECTRICAL MAINTENANCE	
Theoretical	$0.26
Practical	$0.61
Total	$0.36
MECHANICAL MAINTENANCE	
Theoretical	$0.29
Practical	$0.87
Total	$0.51
CHEMISTRY	
Theoretical	$0.25
Practical	$0.32
Total	$0.27
DATA PROCESSING	
Theoretical	$0.29
Practical	$0.16
Total	$0.24

SOURCE: FEMC

Table 6 Per student annual cost, FEMC and comparable institutions (in US$)

INSTITUTION	COST
FEMC (1989)	$1,165.46
FEDERAL TECHNICAL SCHOOLS (1985)	$1,759.00
AGRICULTURAL	$2,727.00
INDUSTRIAL	$1,516.00
SENAI TECHNICAL SCHOOLS (1985)	$1,880.00

SOURCES: FEMC, IPEA, MEC, SENAI

The disaggregation of costs in Table 7 highlights the heavy weight of shadow rents paid for machinery and equipment in per pupil costs, which is far greater than the weight of salaries and premises together. The sum of teachers' salaries is slightly less than twice as large as the sum of administrative salaries, which reflects high pupil/teacher ratios (18/1) in FEMC programmes.

Table 7 Total costs and per student hourly costs , 1989 evening technical courses (in US$)

COST CATEGORIES	TOTAL COST $	STUDENT HOURS	COST PER STUDENT HOUR($)
Administrative costs			
Salaries	270,846.53	2,482,390	0.10
Shadow-rent of premise	18,463.55	2,482,390	0.01
Operational costs			
Salaries	458,994.36	2,482,390	0.19
Other current costs	55,935.23	811,590	0.07
Shadow-rent of equipment	408,308.40	811,590	0.50
Shadow-rent of premises	53,390.65	2,482,390	0.02
TOTAL	1,265,938.60	11,552,740	0.51

SOURCE: FEMC

If relatively low per pupil costs are an indicator of good management on the one hand, they are also a reflection of the difficulties that the school faces in, for example, keeping its equipment and training programmes up to date. According to local informants the FEMC is able to cover its recurrent costs with difficulty, but necessary capital expenditures are a major

stumbling block. It is here that the talents of the FEMC in acquiring equipment at minimum expense are brought into play. Help is solicited from firms in the region and elsewhere, with the argument that the school provides a showcase for their products. One informant pointed out the school's first microcomputer, comparing it to "a miser's first dollar bill." The computer was provided in return for a course offered by the FEMC. Since it arrived the school has been offering courses in data processing, with all income from the courses reserved for the purchase of additional microcomputers so as to increase its training capacity in the area. There are also examples of astonishing inventiveness in the construction of workshop and office equipment from discarded materials.

V. Finance and the way forward

The recognition accorded to the accomplishments of the school, in combination with the chronic insufficiency of income in relation to expenses, may lead to changes in the FEMC programme. To the extent that Brazil's economic/financial situation requires firms to cut costs and reduces the local demand for skilled workers, a decline in business support for the FEMC is likely. In 1989 a financial crisis was only averted when the Board of Directors called for increased contributions from local businesses. What would have happened if this policy had not been approved? The answer is necessarily speculative, but as organisations seek survival before all else it is likely that the FEMC would have shifted its programme focus in response to financial exigency. Compensating for the loss of business support by collecting higher fees from students would have meant the enrolment of fewer poor students. Lacking competitors in the region the FEMC would have no difficulty in recruiting students able to pay the higher fees, but in this case enrolments in the school would have become more like those in other technical schools throughout Brazil, where most students are more interested in continuing their education than in acquiring a vocational qualification. In other words, the students would increasingly have attempted to use the school as a springboard to the university rather than commiting themselves to jobs in the industrial and commercial sectors within the region (cf. Gomes, 1982).

Changing recruitment patterns as a survival strategy is illustrated in the experience of the National Professional Training Institute (INACAP) in Chile, which offers a warning to the FEMC and similar institutions. Established as public agency responsible for occupational training throughout Chile, INACAP passed safely through various crises until 1975, when the government initiated the deregulation of the training sector and withdrew public financial support. Taking advantage of the experience and expertise accumulated over decades INACAP shifted its activities to those that could pay for themselves, including technical education and non-traditional university courses as well as the sale of services to businesses. By 1989 more than 85 percent of the Institute's income came from the payment of fees by students, with the balance obtained from firms (Castro and Bas, n.d.). One consequence, however, was that INACAP ceased to provide training to unskilled and semi- skilled workers, or to young people seeking to enter the job market. The places previously occupied by these students were taken by students from the middle and upper classes who had failed to gain admission to universities, and by white collar employees from large firms.

Under similar circumstances the FEMC could also survive without major organisational changes, though it would have to adapt its objectives to match the interests and aspirations of its new clientele (cf. Sills, 1978; Selznick, 1978). This was clear to all when the FEMC faced a crisis in 1989, and local businessmen resolved to increase their financial support. At the same time they sought to increase the number of firms participating in the support of the Foundation, and to obtain public money to cover necessary capital expenses. The future of the Foundation and its present programmes depends on the success of these efforts.

One point is clear from the present case study: the achievements of the FEMC could be repeated elsewhere. Though there has been a tradition of business participation in occupational training in Brazil since the 1940s, the establishment of the FEMC came about in response to urgent necessity. Even after the initial challenge of replacing workers from other regions with local manpower had been surmounted, however, local firms continued

their support. There were advantages in their continued participation: they were able to design training programmes in accordance with their own needs, keep salaries and turnover down, and employ trainees at relatively low wages. It is possible that businesses in similar circumstances elsewhere would adopt the same strategy, if certain conditions were met. Business leaders must recognise that education and training are investments, and accept that businesses must pay a share of the costs if public support is not forthcoming, as it is unlikely that the full cost of training will be borne by students in any but exceptional circumstances. It was recognition of these realities that made the success of the FEMC in Montes Claros possible.

The experience of the FEMC should be extremely gratifying to neoliberals, who advocate deregulation and a reduced role for the State. The advantages of the FEMC over larger training organisations, with their high administrative costs and slow responses to changing markets, are obvious. In contrast to public agencies with guaranteed budgets the financial uncertainties faced by the FEMC oblige it to adapt to new opportunities and demands. The payment of fees by students and employers encourages both a high level of motivation among students and responsiveness to client interests in training programmes, while not requiring either students or employers to pay the full cost of the services provided. On the negative side, the financial arrangements of the FEMC allow only limited access to poorest students, and impose costs on employers that vary widely according to the firm's willingness to contribute.

In summary, the Montes Claros case study offers several lessons for the financing of vocational education. The sources of funding available to a programme have a clear impact on its success in fulfilling its objectives. In the case of the FEMC the continual struggle for the means of survival led to the expansion and improvement of its programmes. By the same token, the ready availability of public budgetary support for other programmes may eventually make them less responsive to their markets. Relying on public revenues may create additional problems as well, because the distribution of public resources across sectors and across regions is often determined by pressures which bear no relationship to the demands of clients. In any case, any strategy for financing vocational education must take into account the large segment of the population whose incomes will not allow them to pay the costs of their own occupational training. The serious problems of unemployment and underemployment in a highly unequal society must be kept in mind so that an experience like that of INACAP in Chile does not make an already difficult social situation worse.

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